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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,201	10/24/2003	Francis T. McQuade	102276-300	2335
27267	7590	12/10/2004	EXAMINER	
WIGGIN AND DANA LLP ATTENTION: PATENT DOCKETING ONE CENTURY TOWER, P.O. BOX 1832 NEW HAVEN, CT 06508-1832			HOLLINGTON, JERMELE M	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/693,201	Applicant(s) MCQUADE ET AL.	
	Examiner Jermele M. Hollington	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.  
2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-22 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/03, 08/04</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, two spacing covers [claim 10] must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Double Patenting***

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v.*

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*Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 4-9 and 11-14 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 4-9 and 11-14 of copending Application No. 10/027,146. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 4, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuta (6144212).

Regarding claim 4, Mizuta disclose (see Fig. 1) a micro probe (4) [see **Note** below] comprising: a probe base (upper portion 4a) having a generally uniform thickness; a probe shaft (intermediate portion 4b) connected to said probe base (4a) said probe shaft (4b) of said generally uniform thickness and extending along a curved expanse within said plane [see Fig. 1]; a probe end (lower portion 4c) connected to said probe shaft (4b) said probe end (4c) of said generally uniform thickness and extending for a substantially straight distance within said plane said straight distance being approximately parallel to said straight length [see Fig. 1]; and a

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scallop running substantially around a periphery comprised of the edges of said probe base (4a), said probe shaft (4b), and said probe end (4c).

[Note: The limitation “manufactured according to the method of claim 1” is not given patentable weight because “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP 2113)].

Regarding claim 9, Mizuta discloses (see Fig. 1) a probe test head comprising: a first die (upper guide plate 5) comprised of first and second opposing planar surfaces (not numbered but shown) said first die (5) further comprising a pattern of first die holes (5a) extending through said first die (5) in a direction perpendicular to both of said first and second planar surfaces; a second die (lower guide plate 6) comprised of third and forth opposing planar surfaces (not number but shown) said second die (6) further comprising a pattern of second die holes (6a) corresponding to said pattern of first die holes (5a) said second die holes (6a) [see Fig. 9] extending through said second die (6) in said direction wherein said third planar surface is arranged in planar contact with said second planar surface such that said second die holes (6a) are offset from said first die holes (5a) [see Fig. 1] in a substantially uniform direction; and a plurality of probes (4) one each of said probes extending through one of said first die holes (5a).

Regarding claim 10, Mizuta discloses two spacing covers (support members 10) one each of said spacing covers inset into said first (5) and second (6) die.

Regarding claim 11, Mizuta discloses each of said plurality of probes (4) is substantially uniform in shape when compared to each other one of said plurality of probes (4) [see Fig. 1].

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-3 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (6448506) in view of Kato et al (JP03062546A).

Regarding claim 1, Glenn et al disclose (see Figs. 1a-1h) a method of fabricating a plurality of micro probes (10) comprising the steps of: providing a plurality of probes (10) as a mask; applying a photoresist (40) to a side (30a) of a first metal material (metal foil 30) [see col. 4, line 64- col. 5, line 10]; overlaying said mask (10) on said side (30a) and second of said first metal material (30); exposing said photoresist (40) to light passed through said mask (10); developing said photoresist (40); removing a portion of said photoresist (40) to expose a portion

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[via hole 21] of said first metal material (30); electroforming [see col. 5, lines 7-11] a second metal material (30b) on said exposed portions of said first metal material (30a) and removing said second metal material (30b) to produce a plurality of probes. However, they do not disclose one or more masks including a plurality of shapes as claimed. Kato et al disclose [see Fig. 3] one or more masks (masks 11), wherein each of said one or more masks (11) including a plurality of probes (material 10) shapes [see under "ABSTRACT" the paragraph called "CONSTITUTION" which states: "...taper-etching is performed to the front end of W10 by reactive etching using a chlorine gas by utilizing the regression of the resist masks 11 so as to obtain a sharp projecting probe shape."]. Further, Kato et al teach that the addition of masks including probe shapes is advantageous because it is being use to sharpen each probe in order for the probe to simultaneously measure multiple points on a device test. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Glenn et al by adding masks as taught by Kato et al in order to sharpen each probe in order for the probe to simultaneously measure multiple points on a device test.

Regarding claims 2-3, Glenn et al disclose applying a photoresist (40) to first (30a) and second (30b) opposing sides of a metal material (30) [see col. 4, line 64- col. 5, line 10] and overlaying one each of said masks (10) on opposing first (30a) and second (30b) sides of said metal material (30) wherein said metal material (30) is composed of an alloy [see col. 4, lines 51-55]. However, Glenn et al do not disclose the metal material is composed of stainless steel and one of Nickel and Nickel-Cobalt alloy. It is well known to have metal material composed of stainless steel and one of Nickel and Nickel-Cobalt alloy where needed (see MPEP 2144.04 *In re Seid*, 161 F.2d 229, 73 USPQ 431 (CCPA 1947)). It would have been obvious to a person having

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ordinary skill in the art at the time the invention was made to have the metal foil composed of stainless steel and one of Nickel and Nickel-Cobalt alloy since the metals, which relates to ornamentation that has no mechanical function, would provide support in a selective manner to each individual user fabricating a plurality of probes.

Regarding claim 15, Glenn et al disclose a method of manufacturing a probe test head, the method comprising: a step for fabricating the plurality of probes (10) using the one or more masks, disposing the plurality of probes (10) through a corresponding first plurality of holes (holes 20-21) in a first die (30), the first die (30) including first (30a) and second (30b) opposing planar surfaces and the first plurality of holes (20-21) extending through the first die (30) between the first (30a) and second (30b) opposing planar surfaces; and disposing the plurality of probes (10) through a corresponding second plurality of holes in a second die (60), the second die (60) including third (60a) and fourth (60b) opposing planar surfaces and the second plurality of holes extending through the second die (60) between the third (60a) and fourth (60b) opposing planar surfaces. However, they do not disclose one or more masks including a plurality of shapes as claimed. Kato et al disclose [see Fig. 3] one or more masks (masks 11), wherein each of said one or more masks (11) including a plurality of probes (material 10) shapes [see under "ABSTRACT" the paragraph called "CONSTITUTION" which states: "...taper-etching is performed to the front end of W10 by reactive etching using a chlorine gas by utilizing the regression of the resist masks 11 so as to obtain a sharp projecting probe shape."]. Further, Kato et al teach that the addition of masks including probe shapes is advantageous because it is being use to sharpen each probe in order for the probe to simultaneously measure multiple points on a device test. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the



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apparatus of Glenn et al by adding masks as taught by Kato et al in order to sharpen each probe in order for the probe to simultaneously measure multiple points on a device test.

Regarding claim 16, Glenn et al disclose (see Figs. 1a-1h) a method of fabricating a plurality of micro probes (10) comprising the steps of: applying a photoresist (40) to first (30a) and second (30b) opposing sides of a metal material (30) [see col. 4, line 64- col. 5, line 10]; overlaying one each of said masks (10) on opposing first (30a) and second (30b) sides of said metal material (30); exposing said photoresist (40) to light passed through each of said masks (10); developing said photoresist (40); removing a portion of said photoresist (40) to expose a portion [via hole 21] of said metal foil (30); electroforming [see col. 5, lines 7-11] a second metal material (30b) on said exposed portions of said first metal material (30a) and removing said second metal material (30b) to produce a plurality of probes.

Regarding claim 17, Glenn et al disclose (see Figs. 1a-1h) a method of fabricating a plurality of micro probes (10) comprising the steps of: providing a plurality of probes (10) as masks; applying a photoresist (40) to first (30a) and second (30b) opposing sides of a metal foil (30) [see col. 4, line 64- col. 5, line 10]; overlaying one each of said masks (10) on opposing first (30a) and second (30b) sides of said metal foil (30); exposing said photoresist (40) to light passed through each of said masks (10); developing said photoresist (40); removing a portion of said photoresist (40) to expose a portion [via hole 21] of said metal foil (30); and applying an etcher [not shown but see col. 5, lines 7-11] to the surface of said metal foil (30) to remove said exposed portion to produce a plurality of probes.

Claims 5-8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuta (6144212).

Regarding claims 5-6, Mizuta disclose (see Fig. 1) a micro probe (4) comprising: a probe base (upper portion 4a) having a generally uniform thickness; a probe shaft (intermediate portion 4b) connected to said probe base (4a) said probe shaft (4b) of said generally uniform thickness and a probe end (lower portion 4c). However, they do not disclose said uniform thickness is preferably between 2 mils -5 mils. It is well known to make the uniform thickness of the probe to be between 2 mils -5 mils (see MPEP 2144.04 *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the probe uniform thickness to be between 2 mils -5 mils since the size of the thickness would provide support in a selective manner to each individual user fabricating a probe.

Regarding claim 7, Mizuta discloses said scallop further comprises a scallop base (top portion of lower portion 4c) and a scallop tip (bottom portion of lower portion 4c).

Regarding claim 8, Mizuta discloses said scallop base (top portion of lower portion 4c) and said scallop tip (bottom portion of lower portion 4c) are separated by a substantially uniformly distance [see Fig. 1].

Regarding claims 12-14, Mizuta discloses (see Fig. 1) a probe test head comprising: a first die (upper guide plate 5) having a pattern of first die holes (5a) extending through said first die (5); a second die (lower guide plate 6) having a pattern of second die holes (6a) and a plurality of probes (4) one each of said probes extending through one of said first die holes (5a) and one of said second die holes (6a). However, he does not disclose the probes are within 0.002-0.0005 inches of every other probe as claimed. It is well known to make the probes are within .002-.0005 inches of every other probe (see MPEP 2144.04 *In Gardner v. TEC Systems, Inc.*, 725

F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the probes within .002-.0005 inches of every other probe since the spaces of the probes would provide support in a selective manner to each individual user using the probe test head for testing a DUT.

9. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (6448506) in view of Kato et al (JP03062546A) as applied to claims 1-3 and 15-17 above, and further in view of Mizuta (6144212).

Regarding claim 18, Glenn et al disclose (see Figs. 1a-1h) a method of fabricating a plurality of micro probes (10) comprising the steps of: providing a plurality of probes (10) as a mask in view of Kato et al disclose [see Fig. 3] one or more masks (masks 11), wherein each of said one or more masks (11) including a plurality of probes (material 10) shapes [see under "ABSTRACT" the paragraph called "CONSTITUTION" which states: "...taper-etching is performed to the front end of W10 by reactive etching using a chlorine gas by utilizing the regression of the resist masks 11 so as to obtain a sharp projecting probe shape."]. However, they do not disclose a probe as claimed. Mizuta disclose (see Fig. 1) a micro probe (4) [see Note below] comprising: a probe base (upper portion 4a) having a generally uniform thickness; a probe shaft (intermediate portion 4b) connected to said probe base (4a) said probe shaft (4b) of said generally uniform thickness and extending along a curved expanse within said plane [see Fig. 1]; a probe end (lower portion 4c) connected to said probe shaft (4b) said probe end (4c) of said generally uniform thickness and extending for a substantially straight distance within said plane said straight distance being approximately parallel to said straight length [see Fig. 1]; and a scallop running substantially around a periphery comprised of the edges of said probe base (4a), said probe shaft (4b), and said probe end (4c).

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Further, Mizuta teaches that the addition of probe is advantageous because it improves a probe card so that it could manufactured at low cost and allow a shorter test time. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Glenn et al (6448506) in view of Kato et al (JP03062546A) by adding probe as taught by Mizuta in order to improve a probe card so that it could manufactured at low cost and allow a shorter test time.

Regarding claims 19-20, Mizuta disclose (see Fig. 1) a micro probe (4) comprising: a probe base (upper portion 4a) having a generally uniform thickness; a probe shaft (intermediate portion 4b) connected to said probe base (4a) said probe shaft (4b) of said generally uniform thickness and a probe end (lower portion 4c). However, they do not disclose said uniform thickness is preferably between 2 mils -5 mils. It is well known to make the uniform thickness of the probe to be between 2 mils -5 mils (see MPEP 2144.04 *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the probe uniform thickness to be between 2 mils -5 mils since the size of the thickness would provide support in a selective manner to each individual user fabricating a probe.

Regarding claim 21, Mizuta disclose the scallop further comprising a scallop base (4a) and a scallop tip (4c).

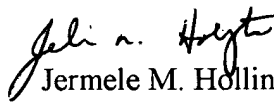
Regarding claim 22, Mizuta disclose the scallop base (4a) and the scallop tip (4c) are separated by a substantially uniform distance [see Fig. 1].

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:30 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Tokar can be reached on (517) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jermele M. Hollington  
Patent Examiner  
Art Unit 2829

JMH  
December 8, 2004